

ABSTRACT

Inorganic precursors, namely iodosilane precursors, for the low temperature, low pressure deposition of silicon-containing films is provided therein. In one aspect, there is provided a process for forming a silicon-containing film process comprising: introducing a substrate and gaseous reagents comprising an iodosilane precursor having three or less iodine atoms bound to the silicon atom and at least one reagent selected from an oxygen-containing reactive gas, a nitrogen-containing reactive gas, a hydrogen-containing reactive gas and mixtures thereof into a reaction chamber; heating the reaction chamber to one or more temperatures ranging from 200°C to 900°C to form the silicon containing film on the substrate, provided that if the iodosilane precursor has three iodine atoms bound to the silicon atom then the heating step is conducted at one or more pressures less than 600 Torr.